

NOTES ON *LEUCOPOGON* R. BR. (EPACRIDACEAE) IN QUEENSLAND

L. Pedley

Queensland Herbarium, Meiers Road, Indooroopilly, Qld 4068

Summary

Leucopogon blakei, *L. grandiflorus*, *L. lavarackii*, *L. spathaceus* and *L. yorkensis* are described as new. All are confined to Queensland. *L. malayanus* subsp. *novoguineensis* is a new combination based on *Styphelia malayana* var. *novoguineensis* Sleumer, for a taxon from north-eastern Queensland.

Work in progress on the classification of Epacridaceae (Powell *et al.* 1987) suggests that *Leucopogon* will be divided into at least two genera. However, work now well advanced on a census of the plants of Cape York Peninsula and a map of the vegetation of the region demands that some widespread ecologically important species of this alliance have names. These species are described. At the same time I have taken the opportunity to describe one species already treated in the literature (sp. 2 of Stanley & Ross, 1986) and one strikingly distinct species from central Queensland.

***Leucopogon blakei* Pedley, sp. nov.** inter species sectionis *Pleuranthi* Benth. affinis *L. attenuato* Cunn. et *L. conferto* Benth. foliis leviter concavis aliquantum recurvatis non nisi breviter mucronatis, bracteolis sepalisque valde fimbriatis differt. **Typus:** Queensland. LEICHHARDT DISTRICT: Carnarvon Range, August 1960, *Gittins* 371 (holo & iso: BRI).

Leucopogon sp. 2 in Stanley & Ross: Flora of South-eastern Queensland 2: 261 (1986).

Twiggy shrub to 75 cm tall, sometimes prostrate; young branches pubescent, hairs slightly retrorse, 0.1 mm long. Leaves sessile, angulo-obovate, 2–3.6 × 1–2 mm, 1.5–3.5 times as long as wide, mucronulate, slightly concave, somewhat recurved, smooth above, conspicuously veined and slightly pubescent beneath. Flowers white, solitary (with a small rudiment) in the axils of leaves borne on short lateral branches, almost sessile, bracts less than half as long as the bracteoles, bracteoles obtuse, strongly fimbriate, c. 1.5 mm long; sepals obtuse, strongly fimbriate, 2.8 mm long; corolla 3 mm long, tube 1.7 mm long, lobes with copious white beard similar to that of species of sect. *Perojoa*; anthers obtuse, c. 1 mm long; disc 5-lobed; style c. 1 mm long, stigma flattened laterally. Fruit narrowly ellipsoidal, c. 3 mm long, somewhat flattened at the apex with a persistent stout style, about as long as the calyx. **Fig. 1A,B,C.**

Specimens examined (all BRI): Queensland. LEICHHARDT DISTRICT: 1.5 km S of crest of Carnarvon Range on Rolleston–Injune road, Mar 1960, *Johnson* 1461; Injune–Rolleston road, 4.8 km N of third crossing of Dawson R., 25°20'S, 148°40'E, Aug 1977, *Williams* 77099; Carnarvon Range, 25°05'S, 148°15'E, Aug 1969, *Hockings* [AQ 252500]; ditto, without date, May 26; ditto, Aug 1961, *Gittins* 371 (TYPE). DARLING DOWNS DISTRICT: Great Dividing Range about 10 miles [16 km] W of Gurulmundi, May 1960, *Blake* 21278; SW corner of Barakula State Forest, Mar 1982, *Hando* 315; top of range at Waaje, NW Corner of Barakula State Forest, Oct 1981, *Hando* 288.

Distribution: On shallow soil usually overlying sandstone, in inland southern Queensland. **Map 2.**

Notes: Because of its slightly concave leaves, *L. blakei* could be included in series *Planifoliae* Benth., but it resembles species of the small series *Confertae* in the characters of the flowers and in leaf shape so closely that its relationships lie there. It differs from both *L. confertus* and *L. attenuatus* in having strongly fimbriate sepals.

Etymology: The species is named in honour of S.T. Blake (1910–1973), at his death Senior Botanist at the Queensland Herbarium, whose wide botanical interests included Epacridaceae.

Leucopogon grandiflorus Pedley, *sp. nov.* inter species sectionis *Pleuranthi* Benth. forsan affinis *P. alittii* F. Muell. (incola Australiae occidentalis) sed flore uno in quoque axilla et corolla (12–15 mm longa) longiore differt propter formam indumentum dispositioinque foliorum ut videtur ascendit ad *L. rupicolam* C. White qui autem ovario bicellulari instructus et ergo ad seriem *Micranthae* ascribendus. **Typus:** Queensland. LEICHHARDT DISTRICT: Carnarvon Creek, August 1961, *Gittins* 337 (holo & iso: BRI).

Shrub to 2m tall; branchlets with moderately dense, soft, \pm spreading hairs c. 0.5 mm long becoming curved and matted on older parts of the plant. Leaves oblong, 8–10 \times c. 1.3 mm (leaves not flattened) tapering to a point, revolute, discolorous, puberulent above, with long, weak, spreading hairs beneath. Flowers white, solitary (with a small rudiment) in the axils of upper leaves, bracts c. 1mm long, bracteoles c. 2 mm long, concave, obtuse, shortly apiculate; sepals ovate, obtuse, 4.5 mm long; corolla 12–15 mm long, tube 8–9 mm long, lobes narrowly triangular, acute; staminal filaments attached to the middle of the anther; anther 1.7 mm long; disc with 5 prominent deltoid lobes (resembling a coronet); ovary 5-angled, 5-celled, somewhat elongate; style c. 10 mm long with prominent villous capitate stigma. Fruit globose when dry, c. 5 mm long. **Fig. 1D,E.**

Specimens examined (all BRI): Queensland. LEICHHARDT DISTRICT: Ridge N of Arch Creek, 'Early Storms' Holding, Sep 1974, *Gittins* 2767; top of Boolimba Bluff, Carnarvon National Park, 25°03'S, 148°13'E, May 1982, *Neldner & Thomas* 886; Carnarvon Creek, Aug 1961, *Gittins* 337; N of Injune, Moolayember, approx. 25°30'S, 148°30'E, Aug 1987, *Barry* [AQ437346].

Distribution: Restricted to Carnarvon National Park and vicinity, on shallow soils overlying sandstone. **Map 2.**

Notes: The species is a distinctive one with large corollas. One flower dissected was aberrant in having one stamen quite free from the corolla tube. *L. grandiflorus* appears to be most closely related to *L. rupicola* which, however, has a 2-celled ovary. The shape, indumentum and orientation of the leaves of the two are similar, though the flowers of *L. rupicola* are smaller. By virtue of their 2-celled ovaries *L. rupicola* and *L. margarodes* R. Br. are members of series *Micranthae* Benth. whereas *L. grandiflorus*, on account of its revolute leaves and 5-celled ovary, must be referred to series *Ericoideae*.

Etymology: From Latin, *grandi-*, large, and *-florus*, flowered; an allusion to the flowers of the species which are probably the largest in the genus.

Leucopogon lavarackii Pedley, *sp. nov.* affinis *L. leptospermoidis* R. Br. (sectionis *Pleuranthi* Benth) ramulis puberulentis floribus (corolla 5–6 mm longa) majoribus corollis tubis prope basin angustioribus, antheris infra medium affixis et fructibus luteis differt. **Typus:** Mt Tozer, June 1948, *Brass* 19026 (holo: BRI).

Much branched shrub to 3 m high, sometimes flowering when less than 30 cm. Branchlets with short (0.1 mm), soft, erect hairs sometimes extending to the base of the leaves. Leaves oblong, elliptic or oblanceolate, usually 11–15 \times 2–3 mm, 4.5–5.5 times as long as wide, obtuse, mucronulate, convex or with slightly revolute margins, shiny above, glaucous and obviously veined beneath, Flowers 2–4 (and a terminal rudiment) in axillary spikes much shorter than the leaves, hairs of the inflorescence axis longer than those of the branchlets; bracts 0.7 mm long; bracteoles 1.2–1.7 mm long, concave, obtuse, apiculate; sepals subacute, 3–4 mm long, shorter than the corolla tube; corolla 5–6 mm long, the tube one-third to half the total length; anthers c. 1 mm long, attached to filament in their lower halves; disc truncate, easily separated into lobes; ovary ovoid, 5-celled, sometimes distinctly 5-angled; style c. 3 mm long with a prominent peltate stigma. Fruits ellipsoidal, orange-yellow, as long as, or slightly longer than the calyx. **Fig. 2E,F,G.**

Specimens examined: Queensland. COOK DISTRICT: W of Captain Billy Landing [approx. 11°30'S, 142°00'E], Aug 1973, *Lavarack* 2515 (BRI,K); 10 miles [16 km] NE of Iron Range, Apr 1944, *Flecker* in N.Q. Nat. Club No. 8702 (BRI); Iron Range, Jun 1948, *Brass* 19272 (BRI); Tozer Gap, Tozer Range, Jul 1948, *Brass* 19427 (BRI); ditto, Feb 1980, *Clarkson* 2917 (BRI,K,MO,NT,PERTH); Mt Tozer, Jun 1948, *Brass* 19026 (BRI, TYPE); between Gordon & Scrub Hen Creeks, 12°40'S, 143°20'S, *Hyland* 7822 (BRI,QRS); c. 8 km S of Portland Roads, 12°39'S, 143°23'E, Jan 1982, *Barlow* 3722 (BRI,CANB); 10 km S of 'Merapah' homestead, Oct 1982, *Clarkson* 4580 (BRI,MBA); 3.5 km N of upper crossing of Massey Creek on 'Silver Plains' Station, 13°53'S, 143°31'E, Nov 1980, *Clarkson* 3634 (BRI,K,MBA,NSW,NT,PERTH,QRS); 5 miles [8 km] N of Hopevale Mission, 15°14'S, 145°07'E, Sep 1970, *Gittins* 2193 (BRI); Isabella Falls, 23.5 km E of Normanby River on Laura-Cooktown road, 15°17'S, 145°-E, Jun 1985, *Clarkson* 5959 (BRI,CANB,DNA,K,L,MBA,MO,NSW,PERTH,QRS).

Distribution: On sand, sometimes seasonally waterlogged, on the eastern side of Cape York Peninsula north of Cooktown and recorded also on shallow rocky soil near Cooktown and WNW of Coen. **Map 1.**

Notes: Though sometimes confused in the field with *L. ruscifolius* R. Br. with which it sometimes occurs, *L. lavarackii* is most closely allied to *L. leptospermoides*. It differs in having puberulent rather than pubescent branchlets, larger flowers more narrowly constricted at the base, anthers attached to the filament above, not below, the middle and yellow fruits. *L. ruscifolius* has elliptic to obovate leaves 4 mm or more wide, flowers about the same size as those of *L. leptospermoides* and whitish fruits.

Etymology: The species is named for Dr P.S. Lavarack who has a long-standing interest in the vegetation of Cape York Peninsula.

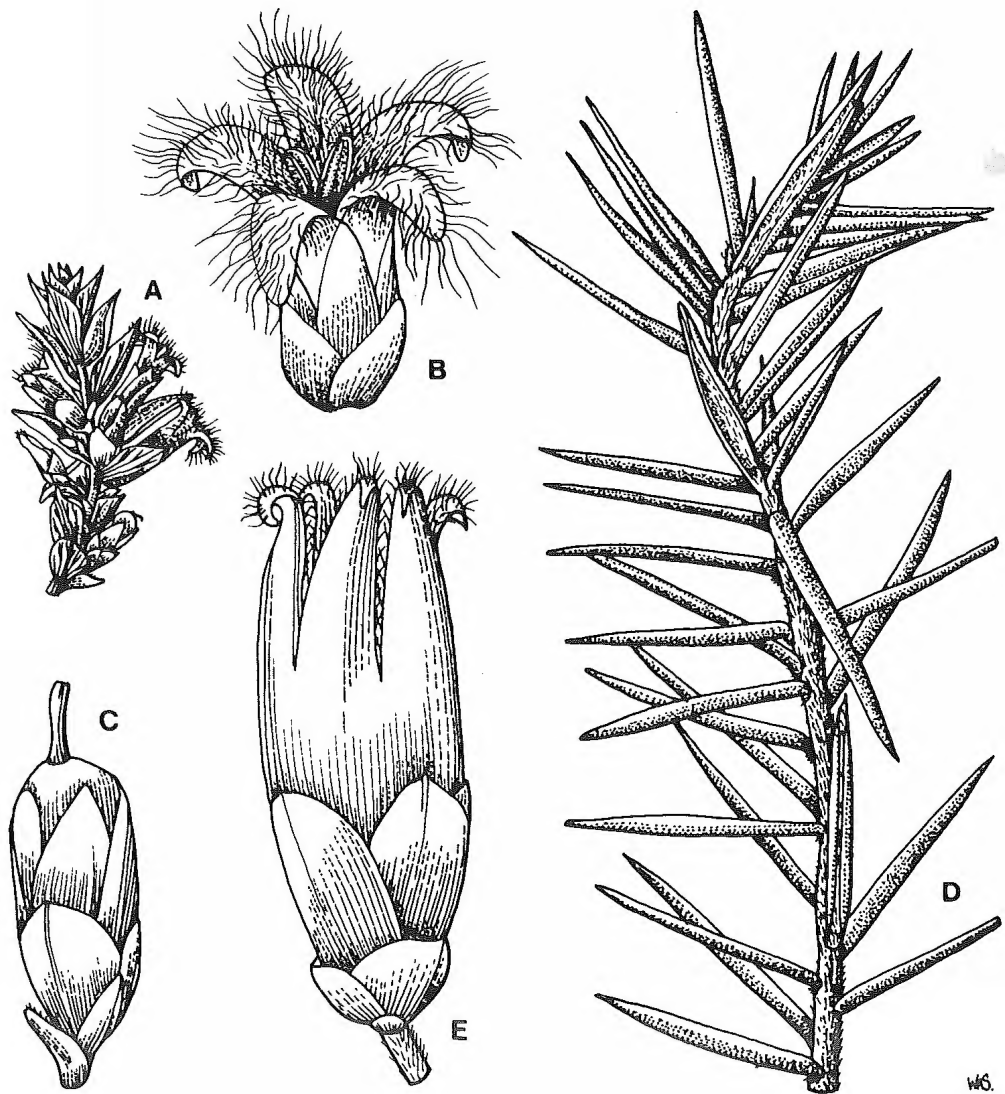


Fig. 1. *Leucopogon blakei*: A. twig $\times 3$. B. flower $\times 12$. C. fruit $\times 12$. *Leucopogon grandiflorus*: D. twig $\times 3$. E. flower $\times 6$.

Leucopogon spathaceus Pedley, sp. nov. affinis *L. pluriloculato* F. Muell. et *L. pleiospermo* (F. Muell.) Benth. (sectionis *Heteranthesis* Benth.), ab amobus foliis \pm planis et ab hoc floribus grandioribus (corolla 3–4 mm longa), disco lobato differt. **Typus:** Queensland. COOK DISTRICT: Davies Creek area, January 1962, *L.J. Webb & J.G. Tracey* 5652 (holo: BRI; iso: K,MO,NSW).

Shrub to 2 m tall; branches with loose white, moderately dense, antrorsely ascending or appressed hairs 0.3 mm long. Leaves oblong, 13–20 \times 2.4–4 mm, 3–8 times as long as wide, produced into a pungent point, flat or slightly concave, glabrous, veins conspicuous beneath, petiole c. 1 mm long. Flowers in a 2–5-flowered raceme, terminal or occasionally in axils of upper leaves, enclosed when young within imbricate scale leaves; bract and bracteole at base of pedicel c. 1 mm long; pedicel shorter than bracts and bracteoles; sepals ovate, 1.5–2 mm long, subacute; corolla 3–4 mm long, the tube c. 1.5 mm long; anthers 1–1.2 mm long, attached to the filament at the top; disc obtusely lobed; ovary 6- or 7-celled, style c. 1 mm long. Fruit creamy yellow, subglobose, c. 3 mm diameter. **Fig. 2A,B.**

Specimens examined: Queensland. COOK DISTRICT: Thornton Peak, 16°10'S, 145°20'E, alt. 1260 m, Nov 1973, *Stocker* 1088 (BRI,QRS); SFR143, North Mary L.A., 16°32'S, 145°16'E, alt. 1000m, May 1979, *Hyland* 9792 (BRI,QRS); S.F.R. 185, Edith L.A., 17°05'S, 145°35'E, alt. 1160 m, Apr 1974, *Irvine* 820 (BRI,QRS); ditto, 17°10'S, 145°35'E, alt. 1000 m, Feb 1972, *Dockrill & Stevens* 820 (BRI,QRS); Davies Creek area, Jan 1962, *Webb & Tracey* 5652 (TYPE: BRI,K,MO,NSW); ridge S of Tinaroo Creek road, 14 miles [22 km] from Mareeba, alt. 900 m, May 1962, *McKee* 9450 (BRI); Tinaroo Creek Forestry Reserve, 17°05'S, 145°36'E, Nov 1979, *Clarkson* 2721 (BRI,K,MBA,MO,NSW,QRS); E of Mareeba, 17°06'S, 143°35'E, alt. 1100 m, May 1983, *de Campo* 20 (BRI,MBA,QRS); Gadgarra, 17°17'S, 145°39'E, Sep 1959, *Smith* 10825 (BRI); S.F.R. 41, near Atherton, Dec 1952, *White* in *QFD* 52/232 (BRI); Whelanian Pools, Meston's Bellenden Ker Expedition, in 1889, *Bailey* [AQ478119] (BRI); Mt Mulligan, 16°52'S, 144°51'E, Apr 1985, *Clarkson* 5768 (BRI,MBA,MEL,NSW,QRS). NORTH KENNEDY DISTRICT: c. 38–40 km S of Ravenshoe, Dec 1977, *Lockyer* 123A (BRI); ditto Mar 1978, *Lockyer* 123B (BRI).

Distribution: In rainforest and eucalypt communities on coastal ranges in the Cairns hinterland. **Map 1.**

Notes: The 6- or 7-celled ovary of *L. spathaceus* suggests affinities with *L. pluriloculatus* and *L. pleiospermus* (sect. *Heteranthesis*). It differs from both in having \pm flat leaves not concave or with revolute margins, and from *L. pleiospermus* in having larger flowers with a lobed disc. The distribution and ecological niches of *L. spathaceus* differ markedly from those of the other two.

Etymology: From Latin *spathaceus*, having the appearance of a spathe, an allusion to the scale leaves that enclose the developing racemes.

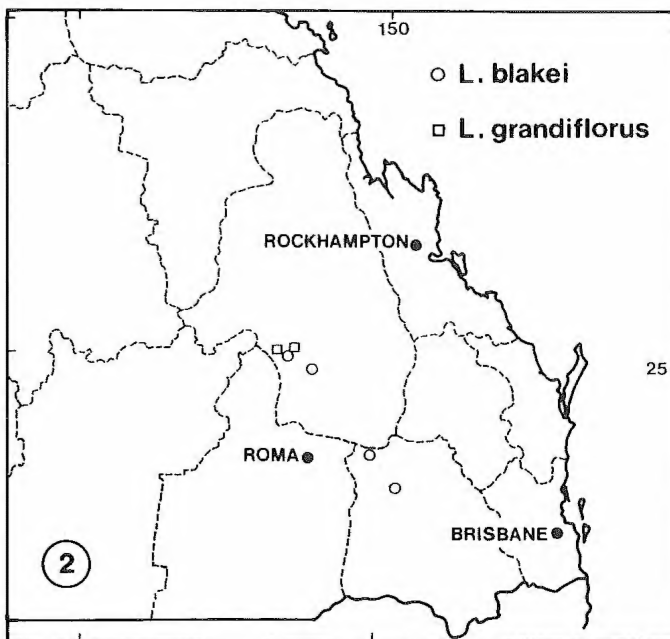
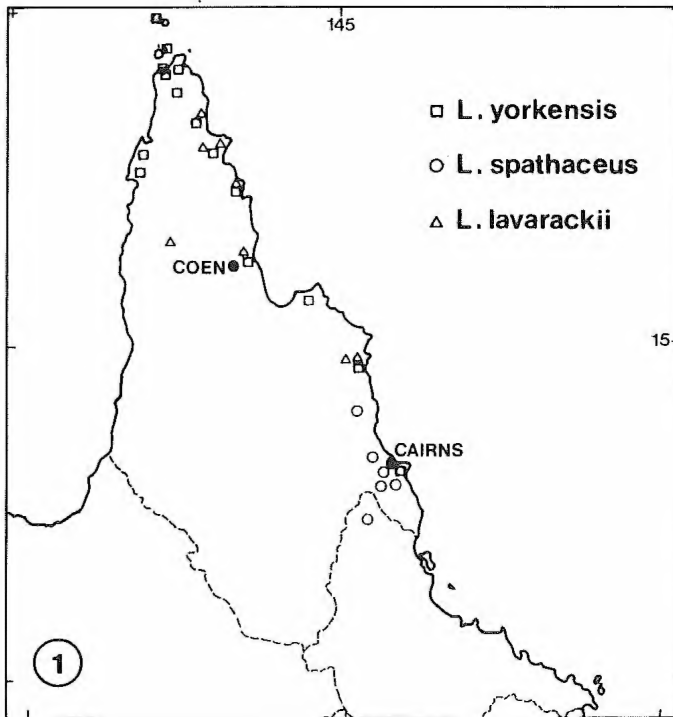
Leucopogon yorkensis Pedley, sp. nov. affinis *L. leptospermoidis* R. Br. (sectionis *Pleuranthi* Benth.) abore ramulis pilis patentibus obtectis, spicis ex 3–12 floribus constantibus et fructibus translucetibus albis differt. **Typus:** *Clarkson* 2940 (holo: BRI; iso: CANB,MEL,MO,NSW,NT,PERTH, PR,QRS).

Shrub or tree to 10 m tall, bark brown fibrous (*vide* Brass), hard and fissured (*vide* Hyland); branchlets with soft erect hairs 0.2–0.4 mm long, shorter sometimes on bases of leaves. Dormant shoots up to 2.5 cm long, sheathed in imbricate bud scales 3–4 mm diameter. Leaves oblanceolate, obovate or spatulate when short, 5–12 \times 1.5–3 mm, usually 2–5 times as long as wide, acute or obtuse with a callous point, not mucronulate, flat or slightly concave, shiny above, somewhat glaucous and veined beneath. Flowers 3–12 in spikes, shorter than the leaves in the upper axils; bracts 0.3–0.5 mm long; bracteoles concave, keeled, obtuse, pubescent on back, 0.7–0.9 mm long; sepals ovate, obtuse, pubescent 1.2–1.6 mm long, longer than the corolla tube; corolla c. 2.5 mm long, the tube c. 0.8 mm; staminal filaments attached to the top of anther; anther 0.7–0.9 mm long, as long as free part of filament; disc truncate, entire; ovary ovoid sometimes pubescent on top, 2-celled, 5-angled; style 1 mm long; stigma small, capitate. Fruit translucent, white, globose, described as 3–6 mm long when fresh, drying to c. 2.5 mm diameter. **Fig. 2C,D.**

Selected Specimens: Queensland. COOK DISTRICT: Badu Is., 10°07'S, 142°09'E, Aug 1979, *Garnett* 114 (BRI); ditto, Oct 1981, *Clarkson* 4005, 4009 & 4019 (BRI,DNA,K,MBA,MO,NSW,PERTH,QRS); Horn Is., Jul 1943, *Tyack Bake* (BRI); Cape York, Jun 1961, *Volk* 1948 in *QFD* 62/54 (BRI); between C. York and Galloways Hill, Oct 1965, *Smith* 12543 (BRI); Cody Creek, 13 miles [21 km] WSW of Somerset, Apr 1948, *Brass* 18514 & 18527 (BRI); Newcastle Bay, May 1948, *Brass* 18770 (BRI); Bamaga district, May 1962, *Webb & Tracey* 6039



Fig. 2. *Leucopogon spathaceus*: A. twig $\times 3$. B. flower $\times 8$. *Leucopogon yorkensis*: C. twig $\times 3$. D. flower $\times 8$. *Leucopogon lavarackii*: E. twig $\times 3$. F. flower $\times 8$. G. fruit $\times 8$.



Maps 1-2. Distribution of *Leucopogon* spp.

(BRI,MEL,NSW); near road crossing of Jardine River, Aug 1973, *Lavarack* 2575 (BRI); Weipa, Jul 1981, *Morton* AM1293 (BRI,MEL); S of Pennefather River mouth, 12°17'S, 141°42'E, Aug 1983, *Clarkson* 4921 (BRI,K,NSW,PERTH,QRS); Olive River, 12°10'S, 143°05'E, Sep 1974, *Hyland* 7443 (BRI,QRS); Restoration Beach, 5 km SW of Cape Weymouth, 12°39'S, 143°24'E, Feb 1980, *Clarkson* 2940 (TYPE); ditto, Jan 1982, *Barlow* 3722 (BRI,CANB); between 'Silver Plains' Station and Rocky River, 5 miles [8 km] N of Massey Creek, approx. 13°50'S, 143°29'E, Oct 1969, *Webb & Tracey* 9729A (BRI); 2 km N of Massey Creek crossing, 'Silver Plains', Nov 1980, *Clarkson* 3620 (BRI,MBA,QRS); Bathurst Bay, 14°25'S, 144°30'E, Jul 1972, *Hyland* 6319 (BRI,QRS); near foot of Melville Range, S of Bathurst Bay, Jul 1972, *Lavarack* 1679 (BRI); 6.2 km E of Hopevale-'Starke' road on track to McIvor River mouth, 15°04'S, 145°10'E, Jun 1984, *Clarkson* 5336 (BRI,DNA,NSW,PERTH); W of Walker Point, S of Cooktown, Jun 1973, *Lavarack* 2132 (BRI); Aboriginal Reserve 204, Trinity, 16°55'S, 145°55'E, Oct 1975, *Hyland* 8515 (BRI,QRS); Yarrabah, in 1918, *Michael* 630 (BRI).

Distribution: On sand, often in pure stands and with *Asteromyrtus symphocarpa* (F. Muell.) Craven in the lee of beach dunes and in various communities ranging from eucalypt woodland to evergreen vine thicket, on islands of Torres Strait, and northern and eastern Cape York Peninsula to Cooktown with an isolated occurrence at Yarrabah (Aboriginal Res. 204) near Cairns. Despite its widespread occurrence and commonness in Cape York Peninsula, *L. yorkensis* is apparently absent from New Guinea. All specimens of *Leucopogon* seen from New Guinea have been from mountains. **Map 1.**

Notes: *L. yorkensis* is related to *L. leptospermoides* but grows to tree size, has spreading hairs on the branchlets and has spikes of 3–12 flowers. Its fruits are translucent white.

Etymology: The species is so named because of its occurrence in many plant communities on Cape York Peninsula.

***Leucopogon malayanus* Jack subsp. *novoguineensis* (Sleumer) Pedley, comb. & stat. nov.**

Styphelia malayana var. *novoguineensis* Sleumer, *Blumea* 12: 148 (1963). **Type:** New Guinea: Cycloop Mts, S slope of the Makanoi Ra., above Kotanica, 600–700 m, July 1961, *van Royen & Sleumer* 6200 (*n.v.*).

Specimens examined: Queensland. COOK DISTRICT: Platypus Creek at head of Mossman River, 16°26'S, 145°15'E, alt. 1100 m, Sep 1972, *Tracey* 14891 (BRI,QRS); Timbercamp Creek on road between Daintree and Bloomfield R., 16°1–S, 145°20'E, alt. 200 m, Aug 1972, *Webb & Tracey* 12145 (BRI,CANB).

Notes: Sleumer, who treated *Leucopogon* as a subgenus of *Styphelia*, recorded this taxon from the Cycloop Mountains in western New Guinea (approx. 2°30'S, 140°45'E) above 600 m alt. Transfer of the varietal epithet to *Leucopogon* is required. Since the taxon is clearly distinguished from *L. malayanus* subsp. *malayanus* by the long hairs on the top of the ovary and base of the style and since there is also a substantial disjunction in the ranges of the two taxa, subspecific rank is therefore considered appropriate.

Acknowledgements

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